

GATE STRUCTURES IN NONVOLATILE MEMORY DEVICES HAVING  
CURVED SIDE WALLS FORMED USING OXYGEN PATHWAYS AND  
METHODS OF FORMING SAME

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ABSTRACT

Gate structures of a non-volatile integrated circuit memory device can include  
a thermal oxidation layer on a substrate beneath the gate structure that defines a side  
wall of the gate structure. An oxygen diffusion barrier layer is on the side wall of the  
gate structure and a floating gate is on the thermal oxidation layer and has a curved  
10 side wall portion. Related methods are also discussed.